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ABSTRACT

The purpose of this compilation is to sketch the evolution of the field from vocational education to career-technical education throughout the 20th century in the United States. It includes information and excerpts from a variety of sources, including both original and foundational documents from the early 20th century and more recent histories and syntheses from the end of the century. It begins by sketching traditional preparation for work and describing the influential philosophies of Snedden, Dewey, and Prosser. The changes brought about by federal legislation, including the Smith-Hughes Act and successive reauthorizations of the Perkins Act are detailed. The issues that underlie the reconceptualization of vocational education in the last decades of the 20th century are outlined, followed by a brief look at the future of the field. Throughout this compilation, excerpted material, which in some cases is extensive, is visually highlighted. Contains 36 references. (SK)

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by Michael E. Wonacott

History and Evolution

2003

A Compilation of Vocational and Career-Technical Education

ED 482 359

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Introduction

In the United States, formal vocational education in schools began early in the 20th century with roots in the traditional techniques of preparing young individuals for work. In the last hundred years, vocational education has evolved from its original inception in response to changes in society, technology, education and educational philosophy, and the workplace. At the dawn of the 21st century, vocational, or career and technical, education goes far beyond the specific technical knowledge and skills required for a particular occupation; today, vocational education encompasses not only technical preparation but also sound academic foundations, higher-order thinking skills, and personal qualities needed for success in the workplace.

The purpose of this paper is not to develop or derive a prescriptive definition of "vocational education" or "career-technical education" for the 21st century or even to trace the changing usage of terminology for the name of the field. Rather, the purpose is to sketch the evolution of the field from vocational education to career-technical education through the course of a century of practice in public school systems in the United States. Thus, the paper is a compilation of information and excerpts from a variety of sources, including both original and foundational documents from the early 20th century and more recent histories and syntheses from the end of the century. An emphasis is given to early foundation documents by Snedden, Prosser, and Dewey, which set the course for a century of vocational education and which wittingly or unwittingly anticipate issues that underlie the reconceptualization of vocational education in the last decades of the 20th century. Throughout this compilation, excerpted material, which in some cases is extensive, is visually highlighted as a reminder to the reader that the text is a direct quote.

Traditional Preparation for Work

Barlow (1976) described traditional preparation for work before the establishment of school-based vocational education in these words:

> Turning our attention back 200 years to 1776, we find three ways in which a person prepared for work. The first was organized apprenticeship. This was generally pretty good. The two types—voluntary and involuntary—provided apprentices, whether boys or girls, with five basic elements: (1) food, clothing, and shelter; (2) religious instruction; (3) general education (3 R's); (4) instruction in a trade or occupation; and (5) the mysteries of the trade (related subjects). Involuntary apprenticeship provided a neat way for towns to take care of their child welfare cases (particularly in the earlier Colonial period). A second way of preparing for work was in a mother-daughter, or father-son relationship in which the fundamentals of a trade or occupation were taught to children in the family. This process is as old as time. The third was the pick-up method, by observation and imitation, but with little actual instruction. A sharp boy or girl, bent upon learning a trade could ultimately pick-up the essential information needed to begin. Experience at doing the task finally made him a craftsman. But vocational education, as we know it today is strictly a 20th century invention.

Excerpt from Barlow, M. L. ***Implications from the History of Vocational Education. Occasional Paper No. 15.*** Columbus: Center for Vocational Education, the Ohio State University, 1976, pp. 1-2.

But why?

Democracy and the Schools

Miller (1985) characterized public education in the United States at the turn of the 20th century as ill suited and unattractive to the great majority of young people who needed, but did not receive, preparation for work:

> Schools in the first decade of the 20th century largely held to the elements of a so-called liberal education. Preparation for college was the intended outcome—an outcome serving fewer than 10 percent of the population. Liberal education was not concerned with making efficient producers, although it did indirectly contribute to that end; rather, it concerned itself with consuming (Snedden 1910).
>
> At the same time, opportunities to work were very attractive to those youth who saw little value in further schooling. For those who chose to leave school for the workforce—and the numbers were large—there had been little or no preparation for work. Fewer than 10 percent of the 17-year-olds received a high school diploma (U.S. Department of Labor 1968). By modern standards, 90 percent of the population were high school dropouts or had never attended high school. Typically, youth left the public schools by the age of fourteen, and less than half of these completed the sixth grade. School attendance laws for persons older than fourteen were just beginning to emerge.
>
> Schools did not adequately serve the needs of youth. The Commission on National Aid to Vocational Education (1914) stressed how public education was falling short. The equality of opportunity in the system of education was not afforded to the mass of children. Although the schools were freely open to every child, the aims and purposes of the schools were such that a majority of the children were unable to take advantage of schooling beyond a certain grade, and hence did not secure, at public expense, a preparation for their work in life. The Commission held that the schools were planned for only the few who were preparing for college rather than the large number who would go into industry.
>
> Advocates of vocational education in the public schools believed that vocational education would make the schools more democratic. "The American school will truly become democratic," said Prosser, "when we learn to train all kinds of men, in all kinds of ways, for all kinds of things" (1913, p. 406). Establishing vocational training as an alternative for those who were leaving schools at 14 years of age would, it was hoped, vastly extend general education, provide a reason for the continued school attendance of more persons fourteen years of age and older, and democratize education.
>
> Several additional benefits were expected as vocational education became a part of the system of public education. Not only would schools be meaningful for more students, but education for employment would help extend the years of education, thus increasing the level of citizenship of those persons. Vocational education would also make for greater efficiency in production and increase the wage-earning of youth—both boys and girls—by helping them move from noneducative occupations as unskilled laborers to positions as skilled workers sought after by industry. Similarly, training in the scientific principles of farming and the household occupations would contribute to greater efficiency in farming and would strengthen the American home (Marshall 1907). It was also believed that vocational training was needed for its indirect but positive effect on the aims and methods of general education (Commission on National Aid 1914). Accordingly, vocational education would develop better teaching processes through which children who did not respond to book instruction might be reached and education through learning by doing. It would also introduce to the educational system the aim of utility, which would take a place in dignity at the side of culture, and would connect education with life by making it purposeful and useful.

Excerpt from Miller, M. D. *Principles and a Philosophy for Vocational Education. Special Publication Series No. 48*. Columbus: National Center for Research in Vocational Education, the Ohio State University, 1985, pp. 13-14.

Snedden and the Problem of Vocational Education

Excerpt from Snedden, D. *The Problem of Vocational Education.* Boston, MA: Houghton Mifflin, 1910, pp. iii-iv.

> . . . in the shifting currents of social progress, some institutions once powerful are left weakened, if not helpless, while other institutions wax strong to meet the demands of time. The homes of the urban industrial classes have not the moral influence over children once exercised by the family life of the farmer; the church grips fewer members with its theological doctrines than it did a century ago; the trades do less for their apprentices in the modern factory than they did when lodged in the household; the press has more influence; libraries are more plentiful; and the school has grown to be a modern giant where once it was a puny babe.

Thus David Snedden, Commissioner of Education for Massachusetts, set the context for the vocational education as he saw it in 1910. In a time of great social, economic, industrial, and educational change, Snedden recounted the demise of institutions like the home, the farm, and apprenticeship that had previously prepared individuals for work and, at the same time, the rise of public education as a vast enterprise providing three broad types of education for different purposes (pp. 3-4):

- **Physical education** was intended "to produce and preserve bodily efficiency, such as health, strength, and working power."
- **Vocational education** was intended "to promote the capacity to earn a living, or, expressed in more social terms, the capacity to do one's share of the productive work of the world."
- **Liberal education** "contributed...to the improvement of social life and to the development of personal culture" with two specific purposes: "to fit the individual to live among his fellows. Religious, moral instruction, and training in civics contribute to this end" and "to develop intellectual and aesthetic capacities, apart from any practical use to which these may be put. This education is frequently designated by the term 'cultural'..."

Snedden drew a clear distinction between liberal and vocational education. He described liberal education as broadening the individual's intellectual and emotional horizons, particularly in areas not directly involved in earning a livelihood: "arts—reading, writing, number, and drawing—which constitute the open doors to the world's stock of knowledge and ideas...[and]...studies—history, literature, science, art—which contribute to the enlightenment and enlargement of the individual" (p. 5); although liberal education did make important indirect contributions to making an "efficient producer," it concerned consumption rather than production. Vocational education, on the other hand, aimed toward specialization in the training of "efficient producers," that is, those with the capacity to earn a living and contribute to productive work.

Snedden divided vocational education into areas based on the occupations for which individuals were prepared:

- **Professional education** prepared lawyers, physicians, engineers, teachers, clergy, and military personnel.
- **Commercial education** prepared bookkeepers, clerks, stenographers, commercial travelers, and business leaders.
- **Industrial education** prepared bricklayers, machinists, shoemakers, metal workers, factory hands, and others in higher manufacturing pursuits.
- **Agricultural education** provided "skill and knowledge looking to the tillage of the soil and the management of domestic animals" (p. 9).
- **Education in the household arts** prepared girls for dressmaking, cooking, and management of the home.

Snedden further divided vocational education into stages based on age and educational levels:

- **Higher vocational education,** or professional education, was a part of higher education and intended for students who had completed secondary and, in some cases, undergraduate education.
- **Vocational training,** on the other hand, included commercial, industrial, and agricultural education and education in the household arts and was "adapted to persons of average capacity" at three different levels:

  Elementary vocational training for those under age 15
  Secondary vocational training for those age 15 to 18 or 19
  Higher vocational training for those over age 18

Snedden identified areas of vocational education that already formed a part of public education, or schools. He noted that three areas of professional education—law, medicine, and theology—had been a part of the university since the Middle Ages and that military education had long since been considered a national obligation. In addition, he identified other areas that had come to be a part of higher education in the United States, specifically teacher education and the higher levels of agricultural, engineering, and technological education. In addition, however, Snedden described another instance of vocational education, one undertaken for social purposes within public education. First, vocational education was provided at public expense to "those unfortunates—delinquents, dependents, and defectives—for whom the home no longer exists, or for whom the home is a wholly insufficient instrument of education" (p. 11); "institutions attempting the education of the orphan, the cripple, the deaf, the blind, and the young delinquent, have found it necessary to evolve vocational education" because "liberal education left the individual unprepared for the practical affairs of life" and "was found to be inadequate" (p. 12). Similarly, the social and economic life of African-Americans (to use the modern term) in the South was badly disorganized after the Civil War; in particular, "the acquisition of vocational skill and interest was not provided for" (p. 12) in the new climate for African-Americans. The needs of African-Americans were met by schools in which vocations were "taught in a very practical and effective manner" (p. 13), with vocational education serving as the groundwork for liberal education.

Finally, Snedden saw three different aspects in the pedagogy and administration of vocational education:

- **Practical studies** provided concrete, specific experiences in the tasks comprising the occupation—"working with soil and plants and with problems of marketing" (p. 27), for example.

- **Technical studies** contribute information and principles from other fields of study that underlie the practice of the occupation—for example, botany, physics, and chemistry for agricultural education; drawing, shop math, and mechanics for industrial education; higher math and commercial law for commercial education; and bacteriology, economics, and architecture for education in the household arts.

- **General vocational studies** cover the history of the occupation and the industry in which the occupation is practiced, occupational variations around the world, and appropriate related topics, such as labor and management issues, transportation and exchange systems, or legislation.

Dewey and the Vocational Aspects of Education

In ***Democracy and Education: An Introduction to the Philosophy of Education,*** John Dewey (1916) presented a philosophy in which education was a necessary part of the self-renewal of social life across generations and the development in youth of attitudes and dispositions necessary to the life of a society. Dewey saw education as *direction*, guiding youth away from their natural impulses toward internal control through understanding, and as *growth*, developing active capacities of thought, invention, and initiative to adjust one's activities and habits to new conditions and new aims. So in the broadest sense, education was preparation—preparation to participate in the life of a society, to perpetuate that society, to replace impulse with control, and to adjust to the new. Dewey saw the social process of education as inevitably reflecting the society in which it occurred, and he prescribed this role for education in a democracy:

A society which makes provision for participation in its good of all its members on equal terms and which secures flexible readjustment of its institutions through interaction of the different forms of associated life is in so far democratic. Such a society must have a type of education which gives individuals a personal interest in social relationships and control, and the habits of mind which secure social changes without introducing disorder. (p. 115)

In Dewey's view, the true aim of educators was to develop in youth the continued capacity for growth, the lifelong ability to continue learning. He criticized educators who imposed their own personal aims on education—to lead youth to read classic literature instead of pulp fiction, for example. Such externally imposed aims, divorced from learners' present reality and activities, amounted to preparation for a future that was entirely remote and disconnected from daily life and led to learning and teaching that were rote, mechanical, and slavish. Dewey concluded that education should involve three carefully balanced aims: *natural development*, or the development of the individual's native, inborn powers and abilities; *social efficiency*, or the "cultivation of power to join freely and fully in shared or common activities" (p. 144); and *culture*, or "the capacity for constantly expanding the range and accuracy of one's perception of meanings" (p. 145). Dewey's philosophy endowed education with various essential characteristics:

- Education should build on individuals' interests to develop discipline, the "development of power of continuous attention" (p. 162).
- Education should connect experience and thinking, not separate them into separate phases, one active and the other passive. Rather, thinking should be an active discovery of the connections between actions and consequences experienced.
- Instruction should provide learners the opportunity to produce "good habits of thinking" (p. 192) by which learners formulate, test, and refine those connections between actions and consequences experienced.
- Good method for teaching focuses not on the details of the subject matter but on the characteristics of learners that contribute to knowing: directness, interest and discipline, integrity of purpose, and acceptance of responsibility for the consequences of one's own thought.
- Subject matter has worth not for its own sake but rather for the individual's incorporation of it into his or her activities as a member of society.
- Education should involve play to tap into student's natural interests and transform them into intrinsically motivated work.

In particular, Dewey contended that education in a democratic society must do away with the dualism of "a liberal education, having to do with the self-sufficing life of leisure devoted to knowing for its own sake, and a useful, practical training for mechanical occupations, devoid of

intellectual and aesthetic content" and instead "construct a course of studies which makes thought a guide of free practice for all and which makes leisure a reward of accepting responsibility for service, rather than a state of exemption from it" (p. 305).

In considering the vocational aspects of education, Dewey began by defining *vocation* in the broadest sense to include not only an occupation by which one earns a living but also any occupation that is "a continuous activity having a purpose" (p. 309), which also includes life roles such as family member, friend, and citizen; to Dewey, everyone had multiple occupations, reflecting the multiple, continuous, purposeful activities in everyone's life. Using that definition of *occupation,* Dewey then made three points:

1. "An occupation is the only thing which balances the distinctive capacity of an individual with his social service" (p. 360). In other words, only through an occupation can an individual attain both personal development and social efficiency.

2. "Education *through* occupations consequently combines within itself more of the factors conducive to learning than any other method" (p. 361, italics in original). In Dewey's view, only an occupation provided the context for learning in which the activity and process of growing—rather than the external product of the end state of finished growth—was the aim, fulfilling Dewey's requirements for aims, interests and discipline, experience and thinking, and play and work.

3. "The adequate training *for* occupations is training *through* occupations" (p. 362, italics in original). Again, only through the immediate, relevant context of an occupation could an individual's aims, interests and discipline, experience and thinking, and play and work interact to result in a broadly educated human being whose dominant vocation is not a narrow, specialized, autocratically controlled wage-earning occupation but rather "living—intellectual and moral growth" (p. 362). Indeed, Dewey specifically warned against narrow *vocational training* that was likely to perpetuate inequitable social divisions and conditions; rather, he argued in favor of a broader *vocational education* which provided individuals with the intellectual knowledge and skills needed to master not only a wage-earning occupation but also all the other occupations of their lives.

The Smith-Hughes Act (P.L. 64-347) of 1917

Lynch (2000) describes the Smith-Hughes Act and its provisions as follows:

> The beginning of the major federal influences in molding and shaping secondary and postsecondary (i.e., subbaccaluareate level) vocational education began with the Smith-Hughes Act of 1917. This legislation was devised in response to a complex set of social, economic, and political forces. In particular, it was enacted to prepare youth for jobs resulting from the industrial revolution and to provide them with an alternative to the general curriculum of schools, which were "too exclusively literary in spirit, scope, and methods" (Swanson 1951, p. 16).
>
> Smith-Hughes provided for a continuing appropriation for vocational education in agriculture, trades and industry, and home economics (homemaking) and for teacher training in each of these fields. Funds were appropriated for the administration of the program at the national level. In essence, Smith-Hughes provided for an alternative high school education from that typically provided at the time for middle and wealthy classes of students. The Smith-Hughes Act emphasized separatism from the classical curriculum and called for a new one that would better meet the needs of the children of the working class, who, for the first time, were attending high school but were not headed for the professions (Gray 1991).

Excerpt from Lynch, R. L. ***New Directions for High School Career and Technical Education in the 21st Century. Information Series No. 384.*** Columbus: ERIC Clearinghouse on Adult, Career, and Vocational Education, Ohio State University, 2000, pp. 7-9.

Excerpt from Lynch (2000), continued

The Smith-Hughes Act provided for a Federal Board for Vocational Education and separate state boards. Each state was required to submit a state plan for federal vocational education funding and to agree that (1) the federally aided program of vocational education would be under public supervision and control, (2) the controlling purpose would be to fit students for useful employment, (3) vocational education would be of less than college grade and designed to meet the needs of persons over 14 years of age who had entered or who were preparing to enter the occupation for which they were receiving training, and (4) the state or local community would provide the necessary plant and equipment (Roberts 1957, p. 132).

It is important to note, as historical context, that the Smith-Hughes Act established vocational education with a separate board from that of the state board for "regular" (i.e., classical) education as well as with separate funds, separate teacher preparation and certification, separate students, and separate and segregated curriculum. The Federal Board mandated the 50-25-25 rule: 50 percent of students' time in shop work, 25 percent in closely related subjects, and 25 percent in academic courses (Hayward and Benson 1993). The intent was, of course, to separate vocational students from those in the classical curriculum and prepare them well for the factories, farms, and homes of the era. And, as is well known, the state plan is still a required prelude to receiving federal funds to support state leadership and local programs of vocational education.

Prosser's 16 Theories of Vocational Education

Widely acknowledged as the father of U.S. vocational education (Barlow 1976), Charles A. Prosser served as the first federal Commissioner for Vocational Education, a position created by the Smith-Hughes Act. His 16 theories provided a comprehensive foundation for vocational education, which "only functions in proportion as it will enable an individual actually to do a job" (Prosser and Allen 1925, p. 192):

Excerpt from Prosser, C. A., and Allen, C. R. ***Vocational Education in a Democracy.*** New York, NY: Century, 1925, pp. 194-209.

The *"first general theory of vocational education . . . Vocational education will be efficient in proportion as the environment in which the learner is trained is a replica of the environment in which he must subsequently work."* (p. 194)

The *"second general theory of vocational education . . . Effective vocational training can only be given where the training jobs are carried on in the same way with the same operations, the same tools and the same machines as in the occupation itself."* (p. 195)

The *"third theory . . . vocational education will be effective in proportion as it trains the individual directly and specifically in the thinking habits and the manipulative habits required in the occupation itself."* (p. 197)

The *fourth theory . . . Vocational education will be effective in proportion as it enables each individual to capitalize his interests, aptitudes and intrinsic intelligence to the highest possible degree."* (p. 198)

The *"fifth theory . . . effective vocational education for any profession, calling, trade, occupation or job can only be given to the selected group of individuals who need it, want it and are able to profit by it."* (p. 198)

The *"sixth theory . . . vocational training will be effective in proportion as the specific training for forming right habits of doing and thinking are repeated to the point that these habits become fixed to the degree necessary for gainful employment."* (p. 199)

The *"seventh theory . . . vocational education will be effective in proportion as the instructor has successful experience in the application of skills and knowledge to the operations and processes he undertakes to teach."* (p. 200)

The *"eighth theory* or *theory of minimum employment standards . . . For every occupation there is a minimum of productive ability which an individual must possess in order to secure or retain employment in that occupation. If vocational education is not carried to that point with that individual, it is neither personally nor socially effective."* (p. 200)

The "theory of market demands or *ninth theory . . . vocational education must recognize conditions as they are and must train individuals to meet the demands of the 'market' even though it may be true that more efficient ways of conducting the occupation may be known and that better working conditions are highly desirable."* (p. 202)

The *"tenth theory . . . The effective establishment of process habits in any learner will be secured in proportion as the training is given on actual jobs and not on exercises or pseudo jobs."* (pp. 202-203)

The *"eleventh theory . . . The only reliable source if content for specific training in an occupation is in the experiences of masters of that occupation."* (p. 203)

The *"twelfth theory . . . For every occupation there is a body of content which is peculiar to that occupation and which practically has no functioning value in any other occupation."* (p. 204)

The *"thirteenth theory . . . Vocational education will render efficient social service in proportion as it meets the specific training needs of any group at the time that they need it and in such a way that they can most effectively profit by the instruction."* (p. 206)

The *"fourteenth theory* or working theory of group characteristics . . . *Vocational education will be socially efficient in proportion as in its methods of instruction and its personal relations with learners it takes into consideration the particular characteristics of any particular group which it serves."* (p. 207)

The *"fifteenth theory . . . The administration of vocational education will be efficient in proportion as it is elastic and fluid rather than rigid and standardized."* (p. 208)

The *"cost theory* or *sixteenth theory . . . While every reasonable effort should be made to reduce per capita cost, there is a minimum below which effective vocational education cannot be given, and if the course does not permit of this minimum of per capita cost, vocational education should not be attempted."* (p. 209)

Prosser and Allen (1925) differentiated between general education and vocational education as shown in Table 1.

Excerpt from Prosser and Allen (1925), continued

Table 1. Some Comparative Points between General and Vocational Education

Factors	General Education	Vocational Education
Basic theory	Faculty psychology	Habit psychology
Form of training	General faculty training	Specific habit training
Character of content	Standardized	Widely diversified specific content
Origin of content	Traditional selection	Experiences of competent workers
Environment	Isolated from life	Under life conditions
Special interest	Not regarded	Regarded
Special aptitudes	Not capitalized	Capitalized
Basis of admission	Ability to meet standardized academic requirements	Ability to profit by the instruction
Scope of service	Limited—chiefly youth	Serve all groups, all ages
Repetitive training	Little	Much
Qualifications of instructors	Know content	Hold specific occupational experience
Standards	Academic	Occupational
Objectives	Appreciation and trained faculties	Ability to meet demands of a specified occupation
Method of training	Illustrations, information, exercises, pseudo jobs	On the job
Working conditions	Practically common to all courses	Different for each course
Basis of operation	To offer a general opportunity	To meet specific needs
Leadership	General	In specific occupations
Group characteristics	Ignored	Considered
Administration	Easy, simple, rigid	Difficult, complex, elastic

Source: Prosser, C. A., and Allen, C. R. ***Vocational Education in a Democracy.*** New York, NY: Century, 1925, p. 210.

The Evolution of Vocational Education since Smith-Hughes

Lynch (2000) continues his historical overview of vocational education:

Since the beginning of this separatism in 1917, vocational teachers have predictably emphasized job-specific skills, almost to the complete exclusion of theoretical content (Hayward and Benson 1993). Program areas or fields of study matching the specific industrial categories called for in the legislation were developed and have persisted with great gusto over the past 80 years and others have been added: distributive education, business education, health occupations, technical education, occupational home economics (focused on wage-earning job preparation in contrast to the original act, which focused only on homemaking), and industrial arts. Thus each of these areas (although several now have different names) were developed with separate teacher certification or training programs, usually separate state administrators and often separate local supervisors, sometimes with separate (but relatively small) pots of funds, separate teacher organizations, separate youth clubs or organizations, and separate lobbyists for federal and state funds. These separate programs, especially through their teacher and youth organizations, became very powerful and influential.

Until recent years, all states had large (at least compared to fine arts and academic subject areas within education) and influential program area state supervisors and a designated state director (and staff) for vocational education who had responsibilities for program development, curriculum development, teaching and learning, youth clubs, research, assessment, etc. Probably one of the reasons these state staffs became so relatively large and powerful is that some of their salaries and related administration costs were often paid 100 percent with federal funds. Since 1990, there has been quite a decline in the numbers of state staff working just in the area of vocational education in most of the states, as the percentage of each state's federal grant that could be used for state administration has been reduced significantly.

The strong federal influence on the development, growth, and nurturing of vocational programs largely remained unchanged throughout the years. Federal policy still looms large in comparison to the relatively small amounts of money the federal government contributes to support vocational education at the local school level—estimated to be only about 6-7 percent on a national average, although the percentage is much higher to support separate vocational high schools or area vocational centers.

Programs in vocational education at the local level were primarily controlled and operated by vocational educators for vocational education students, under the justification that it was vocational education money. Many vocational education programs did not (and still do not) come under the same general school scrutiny or supervision as general and academic subjects or even fine arts and physical education programs. In fact, vocational education was not (and still is not) often on the "radar" of general education policymakers, principals of comprehensive high schools, or school system superintendents. Historically, the direction for vocational education has almost exclusively come from the practitioners themselves *or* the federal government.

The earliest vocational programs were grounded primarily in the need to prepare more immigrants and blue collar-type workers with practical skills for the nation's farms, factories, and homes. The focus of federal legislation shifted over the years to ask states to offer programs and training to support national defense efforts (1920s), reduce unemployment problems (1930s), assist the war effort (1940s), include junior (now most are called commu-

Excerpt from Lynch, R. L. ***New Directions for High School Career and Technical Education in the 21st Century. Information Series No. 384.*** Columbus: ERIC Clearinghouse on Adult, Career, and Vocational Education, Ohio State University, 2000, pp. 8-9.

Excerpt from Lynch (2000), continued

nity) colleges in the 1950s, and shift industries to peacetime economic development in the 1950s and 1960s. But the general thrust of federal policy and funding was to train boys and girls for jobs in the economy.

A significant change in federal policy and direction began in the early 1960s with passage of the Vocational Education Act of 1963. The federal government stepped up influence over state plans by including set-asides, most predominantly to serve poor and disabled persons and youth in economically depressed communities who had academic, socioeconomic, or other disadvantages that prevented them from succeeding in regular vocational education programs. Later amendments in 1968 [Vocational Education Amendments of 1968] and 1972 [Education Amendments of 1976, Title II–Vocational Education] continued set-asides to expand Congress' leverage for vocational educators to serve students with disabilities, disadvantaged students, bilingual students, postsecondary students, and students preparing for occupations not traditional for their gender.

Rethinking Education and Vocational Education

Lewis (1998) describes a wave of school reform in the early 1980s that included vocational as well as academic education:

Excerpt from Lewis, T. ***Toward the 21st Century: Retrospect, Prospect for American Vocationalism. Information Series No. 373***, Columbus: ERIC Clearinghouse on Adult, Career and Vocational Education, Ohio State University, 1998, pp. 3-4.

Even the staunchest advocate would agree that the version of vocational education that has predominated in this century—the job-specific model articulated by David Snedden and Charles Prosser that made its way into law via the Smith-Hughes and subsequent acts—had the serious shortcoming of being class based and often premised upon imperfect estimates of the abilities, talents, and likely destinations of those for whom such education was prescribed.

Vocational pedagogy *per se* was not to be faulted. In its favor, this type of education rejects the sterility of bookish, decontextualized learning, seeking instead to situate knowledge in experience. But despite its clear pedagogic attributes, the subject has yet to gain acceptance as a valid form of school knowledge. Thus, to arrive at its fundamental soundness, one has to ignore the troubling sociological difficulties that have attended it. Beyond race and class propensities, there has been the question of gender. For example, some kinds of vocational programs (e.g., mechanical and construction trades) have been the province of men, and are still viewed as "nontraditional" when pursued by women.

John Dewey (1916) was an early critic of the field, mainly on the grounds that it violated democratic tenets and that it seemed to serve the purposes of capital more than labor. In the 1970s, neo-Marxist critics (e.g., Berg 1970; Bowles and Gintis 1976; Lazerson and Grubb 1974) raised anew the question whether vocational education was any more than a capitalist device intended to regulate the supply of labor. In the 1980s, the nature of the critique of vocational education shifted. Job-specific vocationalism came to be viewed as an anachronism even by advocates of the subject. The catalyst was the publication of ***A Nation at Risk*** (National Commission on Excellence in Education 1983), a report that showed that the school reformers were unabashedly linking regular schooling with productivity and economic competitiveness, viewing academic fitness as the means by which U.S. dominance in these spheres could be restored.

The first wave of school reformers were clear that it was *academic*, not vocational education, that was the antidote to the superiority of Japanese and German manufacturing. If this line of reasoning were allowed to stand, then vocational education's main claim to uniqueness in the curriculum would be in jeopardy. The vocationalist advocates countered by offering a revised rationale that cast the subject area in essentially liberal terms. Now the

focus was on generic skills rather than specific ones. Authors of ***The Unfinished Agenda*** (National Commission on Secondary Vocational Education 1984) argued that vocational education was concerned with student development in—

> (1) personal skills and attitudes, (2) communication and computational skills and technological literacy, (3) employability skills, (4) broad and specific occupational skills and knowledge, and (5) foundations for career planning and lifelong learning. (p. 3)

Excerpt from Lewis (1998), continued

Perkins Legislation for Vocational Education

Lynch (2000) describes dramatic shifts in federal directions for vocational education beginning signaled by the Perkins legislation:

> In 1984, Congress passed the Carl D. Perkins Vocational Education and Applied Technology Act, the forerunner of today's federal legislation. The Perkins Act contained two main objectives: (1) the improvement of vocational programs and (2) better services and increased access to vocational education for students with special needs. These two goals proved to be both ambiguous and overly ambitious, given the state of the economy and the state of education at the time. The original Perkins Act set aside 57 percent of the federal grants to states for disadvantaged groups of one form or another and 43 percent for something called "program improvement." In the late 1980s and early 1990s, vocational education experienced unprecedented enrollment percentage increases from special populations as an increasing number of general student groups opted out of vocational education to take more academic courses and as funding favored inclusion of special populations in vocational education programs.
>
> Perkins II (1990) [The Carl D. Perkins Vocational and Applied Technology Education Act of 1990] and Perkins III (1998) [The Carl D. Perkins Vocational and Applied Technology Education Amendments of 1998] made further dramatic shifts in federal direction for vocational education. Both of these pieces of legislation are essentially grounded in school reform and the mandate to use federal funds to improve student performance and achievement. Perkins II prescriptively called for programs to develop more fully "the academic and occupational skills of all segments of the population. This purpose will principally be achieved through concentrating resources on improving educational programs leading to academic and occupational skills competencies needed to work in a technologically advanced society" (Carl D. Perkins Vocational Education and Applied Technology Act Amendments 1990, p. 7). For the first time in federal vocational education legislation, emphasis was placed on academics and funds could be directed to "all segments" of the population. Tech prep programs were specifically funded.[1]
>
> Perkins III (1998) continues the essence of Perkins II and the "program improvement" component of Perkins I. The federal focus continues to be on developing the academic, vocational, and technical skills of students through high standards and linking secondary and postsecondary programs. Much of the specific language setting aside a percentage of funds or actual dollars for special populations has been removed. States are to provide services to special populations to help them succeed in high-quality vocational education programs, but the federal government will not dictate what those services are to be. The federal government, however, will require each state to provide data on four core indicators of performance: (1) attainment of academic and vocational/technical proficiencies; (2) attainment of a

Excerpt from Lynch, R. L. ***New Directions for High School Career and Technical Education in the 21st Century. Information Series No. 384.*** Columbus: ERIC Clearinghouse on Adult, Career, and Vocational Education, Ohio State University, 2000, pp. 9-12.

[1]Congress' intent in funding tech prep in Perkins II was to provide planning and demonstration grants to consortia of local education agencies and postsecondary educational institutions to develop and operate coordinated programs (2 years secondary-2 years postsecondary) with required academics and technologies and articulation agreements designed to lead to an associate degree or certificate in a specific career field.

Excerpt from Lynch (2000), continued

secondary degree or General Educational Development certificate, proficiency credential in conjunction with a secondary diploma, and a postsecondary degree or credential; (3) placement in, retention in, and completion of postsecondary education or advanced training, placement in military service, or placement or retention in employment; and (4) participation in and completion of programs that lead to nontraditional training and employment.

It seems increasingly clear that we have almost come full circle with federal direction of vocational education. The post-turn-of-the-century legislation was enacted to prepare more students with the type of education it was thought they would need to run farms and factories in the 20th century. Today, Perkins III challenges us to prepare more students with the contemporary education they will need to work successfully in ever-changing, technologically sophisticated, and internationally competitive workplaces. In essence, today's workplaces call for an increasingly educated work force for the 21st century. The major difference is that as a society it is no longer economically sound to track and separate students into those with only (or primarily) a classical curriculum and those with only (or primarily) a vocational curriculum or with relatively narrow, job-specific skills. Both the head and the hands and the theoretical and applied will be needed by most students in most workplaces at some point in their lives.

As mirrored in the larger, complicated society and in its public education system, vocational education in the United States is diverse, large, and complex. It encompasses a great variety of programs designed to equip students with work and life skills. It is offered by more than 33,500 public and private institutions.

In public secondary schools, one or more courses identified with vocational education are offered in 93 percent of the nation's 15,200 comprehensive, grades 9-12 high schools. Nearly all of these high schools offer introductory courses taught for purposes of *general* labor market preparation or to provide students with practical or life skills, such as typing or word processing, technology education (formerly called industrial arts), or family and consumer sciences (formerly called home economics).

About 75 percent of all comprehensive high schools offer *specialized* courses in one or more occupational programs, historically identified as agriculture, business and office, marketing, health, family and consumer sciences—occupational or wage earning, trade and industrial (which may consist of many specialties ranging from cosmetology to construction to mechanics and repair skills), and technical and communications (Boesel, Hudson, Deich, and Masten 1994). More recently, the federal government has added public and protective services, child care and education, food service and hospitality, technology and communications, and personal and other services to its classification of vocational or occupational program areas (Levesque, Lauen, Teitelbaum, Alt, Librera, and Nelson 2000). Fewer than 5 percent of comprehensive high schools offer courses from more than 6 vocational education programs (Hayward and Benson 1993).

More extensive specialized programs (particularly in trade and industrial) tend to be concentrated in some states in area vocational centers or vocational high schools to better accommodate the extensive facilities, workshops and laboratories, and equipment that are often needed and to offer greater depth and breadth of training for some occupational areas (Boesel et al. 1994). There are about 1,100 area vocational centers nationwide where high school students attend part of the day or evening for specialized vocational programs and attend their "home" high school for academic or general courses during the other part of the day. Where area vocational centers are available, the home or comprehensive high school typically does not offer extensive specialized vocational programs. In addition to area vocational centers, there are about 250 vocational high schools in the United States that focus on preparing students for work in a particular occupation or industry, but offer the academic and general courses at the school as well. Students attend this type of vocational high school full time (Boesel et al. 1994).

Public postsecondary vocational education is provided by 720 degree-granting community colleges, 162 technical institutes or colleges that grant degrees in technical fields, 504 postsecondary area vocational schools that do not grant degrees, 308 postsecondary schools serving only 1 industry, and 70 postsecondary skills centers for disadvantaged youth. In addition, there are approximately 2,400 private postsecondary schools offering vocational programs or courses (Hayward and Benson 1993).

Excerpt from Lynch (2000), continued

Toward the Turn of the 21st Century

The shift away from technical preparation for a specific occupation and toward a broader preparation for both work and further education is preeminently reflected in the New Vocationalism associated with W. Norton Grubb and colleagues (Grubb 1995a,b; 1997). Grubb followed Dewey in advocating education through occupations and recommended exemplary practices to address "an historical dilemma. Ever since vocational education became distinct from academic education at the turn of the century, critics of each have called for a reintegration of academic and vocational education" (Grubb 1997, p. 78):

- **Teaching general occupational competencies**—Programs offering education through occupations focus not on the manipulative technical skills necessary for individual jobs but rather on general knowledge and abilities required for a variety of careers in a related area. A more general occupational content serves not only as an element in career planning but also provides preparation both for employment and for further education.

- **Integrating academic and occupational content**—Traditional academic content can and should be incorporated into occupational courses, and traditional academic courses can and should incorporate occupational applications and examples of concepts in the discipline. Integration ultimately requires joint development of new materials by academic and occupational instructors working in close collaboration.

- **Developing new institutional structures**—Reintegration of academic and occupational instruction is promoted by institutional structures like career academies (i.e., schools within a school); career clusters, majors, or pathways; occupational high schools; or occupationally oriented magnet schools. Such institutional structures facilitate the move toward broader preparation for a variety of occupations (e.g., health occupations rather than practical nursing), incorporation of a greater variety of academic content, appeal to a broader range of students, allow instruction about all aspects of an industry, help students make informed choices about education and careers, and allow easier connections to employers and work-based learning.

Grubb (1997) also recommended elements of school-to-work programs for reintegrating academic and vocational education. The School-to-Work Opportunities Act (STWOA) of 1994 was "a systematic, comprehensive effort to help all young people (1) prepare for high-skill and high-wage careers, (2) receive top quality academic instruction, and (3) gain the foundation skills to pursue postsecondary education and lifelong learning" (Imel 1999, p. 1). STWOA mandated school-based learning, work-based learning, and connecting activities. "School-based learning consists of integrated academic and vocational courses that focused on a career area or industry with links to postsecondary education. Partnerships are created with business to develop opportunities for students to take part in worksite learning; these work-based activities coordinate with students' school-based learning. Connecting activities are developed to coordinate the school-based and work-based activities" (ibid., p. 1). The philosophy embodied in STWOA was that both college-bound and noncollege-bound students should have access to learning experiences that were—

Excerpt from Imel, S. ***School-to-Work. Myths and Realities No. 4***. Columbus: ERIC Clearinghouse on Adult, Career and Vocational Education, the Ohio State University, 1999, p. 1.

learner centered...authentic learning opportunities...based on principles that can benefit all students, including a focus on active learning, exploration of career possibilities and interests, and supervised experiences outside of the classroom...[to] help them clarify their personal goals such as the purpose behind attending college; broaden and inform their choices through the exploration of broad job clusters; offer psychological and developmental benefits that academic courses do not necessarily provide; increase their earning power by enabling them to get job experience that can lead to better jobs for those working their way through college; and reinforce academic instruction through the use of applied learning opportunities. (ibid., p. 1)

The National Association of State Directors of Career Technical Education Consortium (n.d.) characterized Career Technical Education as providing students and adults "(1) the technical skills and knowledge necessary to succeed in occupations or careers, (2) the cross-functional or workplace basics necessary for success in any occupation or career (such as problem solving), teamwork, and the ability to find and use information) as well as skills for balancing family and work responsibilities, and (3) the context in which traditional academic skills and a variety if more general educational goals can be enhanced" (n.p.). The Consortium further defined five key principles for Career Technical Education:

Excerpt from National Association of State Directors of Career Technical Education Consortium. ***Career Technical Education: An Essential Component of the Total Educational System***. Washington, DC: NASDCTEc, n.d., n.p.

1. Draws its curricula, standards, and organizing principles from the workplace.
2. Is a critical and integral component of the total educational system, offering career-oriented benefits for all students.
3. Is a critical and integral component of the work force development system, providing the essential foundation for a thriving economy.
4. Maintains high levels of excellence supported through identification of academic and workplace standards, measurement of performance (accountability), and high expectations for participant success.
5. Is robust and flexible enough to respond to the needs of multiple educational environments, customers, and levels of specialization.

Vocational Education in the Future

Finally, Lewis (1998) looks toward the 21st century and echoes the theme of vocational education as twofold preparation, both for the workplace as it is now and for workplace as it will change in the future:

Carnoy (1994) counsels that "to be effective VET [vocational education and training] has to be flexible and tied to actual not future labour market conditions" (p. 239). This is wise advice, not just to developing countries, the audience to which such cautions with respect to training systems are usually addressed, but to advanced countries such as the United States as well. What does flexibility mean, in this context, and how can it be operationalized? At the high school level, it should mean that students are not made to commit to particular careers before they are vocationally mature enough to do so. Instead, they should be exposed to a curriculum that is designed to inculcate *vocational literacy* (Lewis 1997). At the postsecondary level, in institutions such as technical colleges and community colleges, flexibility must mean curricula that prepare people for a range of jobs, within a job family. Within the construction field for example, graduates could learn not just brick laying, but carpentry and plumbing. They thus become multiskilled. Flexibility at this level also means a curriculum that includes actual work-site internships, and the employment of expert workers as part-time instructors.

Ultimately, it is not systems that must be flexible but people. Flexibility means having the wherewithal to make choices in the labor market. Those who are better educated will have more and better choices. Thus, vocational education systems that are premised on sound early education in kindergarten, elementary school, and secondary school would probably engender greater flexibility than those that make compromises and that internalize the ideology that society and school cohorts will divide into halves anyway.

In the next century, vocational education would have arrived at its fullest height, when credits earned in two-year institutions are transferable to and are accepted in four-year colleges. As we look back on education for work in the 20th century, we find that institutions specialized in accordance with an occupational hierarchy. Four-year colleges specialized in white-collar, knowledge workers, whereas two-year post-secondary institutions specialized in blue-collar, technical workers. That model was consistent with Fordist production, in which workplaces were organized along hierarchical lines. But in the 21st century, we must deal with postmodern realities. With flatter organizations, workers will no longer be polarized into blue- and white-collar enclaves. They will belong to teams, irrespective of occupational rank. They will have access to the same shop floor computers, and the same pool of information. All work will be knowledge work. Machinists would need access to information, as would engineers.

If work itself would require an egalitarian approach to shop floor organization, what would be the justification for training workers in separate institutions? The fluidity that already has begun to characterize workplaces as this century ends will become a model for education and training systems. Thus, in the new century, we can expect that there will be a trend toward merged systems of higher education, in which there would be articulation between two-year and four-year systems. The recently merged system of higher education in the state of Minnesota would be worth monitoring. Here, community colleges and technical colleges articulate their offerings with four-year state colleges. Once the commitment is found to articulate two-year systems with four-year ones, much of the status difficulties that now attend vocational education will begin to erode. There will be no need to imagine school curricula in terms of college and noncollege bound.

Under the old model, we would expect movement between systems to be in one direction only, that is, from the two-year to the four-year. But in the future that traffic will increasingly be two way, once vestibules are established between these systems. Engineers may

Excerpt from Lewis, T. ***Toward the 21st Century: Retrospect, Prospect for American Vocationalism. Information Series No. 373***. Columbus: ERIC Clearinghouse on Adult, Career and Vocational Education, Ohio State University, 1998, pp. 37-38.

need course work in welding, just as welders might need course work in metallurgy. Clients could go back and forth through these vestibules as they desire. We could see this sort of system flexibility in the new century, by corporate and public demand.

References

Barlow, M. L. ***Implications from the History of Vocational Education. Occasional Paper No. 15.*** Columbus: Center for Vocational Education, the Ohio State University, 1976. (ERIC Document Reproduction Service No. ED 126 355)

Berg, I. ***Education and Jobs: The Great Training Robbery.*** New York: Praeger Publications, 1970.

Boesel, D.; Hudson, L.; Deich, S.; and Masten, C. ***Participation in and Quality of Vocational Education, National Assessment of Vocational Education, vol. II.*** Washington, DC: Office of Educational Research and Improvement, U.S. Department of Education, 1994. (ERIC Document Reproduction Service No. ED 371 192)

Bowles, S., and Gintis, H. ***Schooling in Capitalist America: Educational Reform and the Contradictions of Economic Life.*** New York: Basic Books, 1976.

Carl D. Perkins Vocational Education Act of 1984. Public Law 98-524. Washington, DC: U.S. Congress, 1984. (ERIC Document Reproduction Service No. ED 256 926)

Carl D. Perkins Vocational and Applied Technology Education Act of 1990. Public Law 101-392. Washington, DC: U.S. Congress, 1990. (ERIC Document Reproduction Service No. ED 330 818)

Carl D. Perkins Vocational and Applied Technology Education Amendments of 1998. Public Law 105-332. Washington, DC: U.S. Congress, 1998. (ERIC Document Reproduction Service No. ED 429 191)

Carnoy, M. "Efficiency and Equity in Vocational Education and Training Policies." ***International Labour Review*** 133, no. 2 (1994): 221-240.

Commission on National Aid to Vocational Education. ***Vocational Education. Vols. 1-2.*** Washington, DC: U.S. Government Printing Office, 1914.

Dewey, J. ***Democracy and Education: An Introduction to the Philosophy of Education.*** New York: Macmillan, 1916.

Education Amendments of 1976, Title II–Vocational Education. Public Law 94-482. Washington, DC: U.S. Congress, 1976. (ERIC Document Reproduction Service No. ED 131 782)

Gray, K. "Vocational Education in High School: A Modern Phoenix?" ***Phi Delta Kappan*** 71, no. 6 (February 1991): 437-445.

Grubb, W. N., ed. ***Education through Occupations. Vol. I. Approaches to Integrating Academic and Vocational Education.*** New York: Teachers College Press, Columbia University, 1995a.

Grubb, W. N., ed. ***Education through Occupations. Vol. II. The Challenges of Implementing Curriculum Integration.*** New York: Teachers College Press, Columbia University, 1995b.

Grubb, W. N. "Not There Yet: Prospects and Problems for "Education through Occupations." ***Journal of Vocational Education Research*** 22, no. 2 (1997): 77-94.

Hayward, G. C., and Benson, C. S. ***Vocational-Technical Education: Major Reforms and Debates 1917-Present***. Washington, DC: Office of Vocational and Adult Education, U.S. Department of Education, 1993. (ERIC Document Reproduction Service No. ED 369 959)

Imel, S. ***School-to-Work. Myths and Realities No. 4.*** Columbus: ERIC Clearinghouse on Adult, Career and Vocational Education, the Ohio State University, 1999. (ERIC Document Reproduction Service No. ED 435 835) http://cete.org/acve

Lazerson, M., and Grubb. W. N. ***American Education and Vocationalism: A Documentary History.*** New York: Teachers College Press, 1974.

Lewis, T. ***Toward the 21st Century: Retrospect, Prospect for American Vocationalism. Information Series No. 373.*** Columbus: ERIC Clearinghouse on Adult, Career and Vocational Education, the Ohio State University, 1998. (ERIC Document Reproduction Service No. ED 423 421) http://cete.org/acve

Lewis, T. "Towards a Liberal Vocational Education." ***Journal of Philosophy of Education*** 31, no. 3 (1997): 477-489.

Levesque, K.; Lauen, D.; Teitelbaum, P.; Alt, M.; Librera, S.; and Nelson, D. ***Vocational Education in the United States: Toward the Year 2000.*** Washington, DC: Office of Educational Research and Improvement, U.S. Department of Education, 2000. (ERIC Document Reproduction Service No. ED 437 583)

Lynch, R. L. ***New Directions for High School Career and Technical Education in the 21st Century. Information Series No. 384.*** Columbus: ERIC Clearinghouse on Adult, Career, and Vocational Education, the Ohio State University, 2000. (ERIC Document Reproduction Service No. ED 444 037) http://cete.org/acve

Marshall, F. ***Industrial Training for Women. Bulletin No. 4.*** New York: National Society for the Promotion of Industrial Education, October 1907.

Miller, M. D. ***Principles and a Philosophy for Vocational Education. Special Publication Series No. 48.*** Columbus: National Center for Research in Vocational Education, the Ohio State University, 1985. (ERIC Document Reproduction Service No. ED 250 497)

National Association of State Directors of Career Technical Education Consortium. ***Career Technical Education: An Essential Component of the Total Educational System.*** Washington, DC: NASDCTEc, n.d. http://www.careertech.org/publications/Directors.pdf

National Commission on Excellence in Education. ***A Nation at Risk: The Imperative for Reform.*** Washington, DC: NCEE, 1983. (ERIC Document Reproduction Service No. ED 226 006)

National Commission on Secondary Vocational Education. ***The Unfinished Agenda: The Role of Vocational Education in the High School.*** Columbus: National Center for Research in Vocational Education, the Ohio State University, 1984. (ERIC Document Reproduction Service No. ED 251 622)

Prosser, C. A. "The Meaning of Industrial Education." ***Vocational Education*** (May 1913): 401-410.

Prosser, C. A., and Allen, C. R. ***Vocational Education in a Democracy.*** New York: Century, 1925.

Roberts, R. W. ***Vocational and Practical Arts Education.*** New York: Harper and Row Publishers, 1957.

Smith Hughes Act of 1917. Public Law 64-357. Washington, DC: U.S. Congress, 1917.

Snedden, D. ***The Problem of Vocational Education.*** Boston, MA: Houghton Mifflin, 1910.

Swanson, J. C., comp. ***Development of Federal Legislation for Vocational Education.*** Chicago, IL: American Technical Society, 1951.

U.S. Department of Labor. ***Trends in Educational Attainment of Women.*** Washington, DC: U.S. Government Printing Office, April 1968.

Vocational Education Act of 1963. Public Law 88-210. Washington, DC: U.S. Congress, 1963. (ERIC Document Reproduction Service No. ED 019 402).

Vocational Education Amendments of 1968. Public Law 90-576. Washington, DC: U.S. Congress, 1968. (ERIC Document Reproduction Service No. ED 039 352)

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